

Of course it would be a labour of many years before every county in Ireland would have its own recorded Flora ; but the Committee would lose no opportunity of increasing their knowledge of local plants, and they looked to each Member, more especially their Corresponding Members in Ireland, to help them in this important matter.

The ballot having been opened, the following gentlemen were declared duly elected :—

Ordinary Members :—A. Lefroy, M. A., M. P. ; Rev. J. Evans, A. B. ; James Wilson, A. M. ; and F. W. Briscoe, Jun. Fresh.

FRIDAY EVENING, APRIL 15, 1859.

PROFESSOR W. H. HARVEY, M. D., F. R. & L. SS., PRESIDENT,
in the Chair.

THE Minutes of last Meeting having been read, were approved of, and signed by the Chairman.

DR. E. PERCEVAL WRIGHT, F. L. S., read the following paper—

ON GWYNIA, DIELASMA, AND MACANDREVIA—THREE NEW GENERA OF PALLIOBRANCHIATE MOLLUSCA, ONE OF WHICH HAS BEEN DREDGED IN BELFAST LOUGH. BY WILLIAM KING, PROFESSOR OF GEOLOGY, QUEEN'S COLLEGE, GALWAY.

THE Palliobranchs have, of late years, been much subdivided ; but it is a question with many as to the value of the resulting groups—one party maintaining that a certain group is a genus ; another, that it is a sub-genus. To decide this question satisfactorily it is to be feared that others even more difficult must be disposed of first ; as—What is a genus ? What is a sub-genus ? But, as I have no intention of entering on the discussion of these questions, I may be excused passing them over, and merely stating, that I look on most of the groups alluded to as the equivalents of genera, in the ordinary sense of the term. Those who contend for their being mere sub-genera adhere to the grave error, which has often been committed, by myself amongst others, of juxtaposing and undervaluing groups which are very different in essential characters, and really typical of widely separated families. There are many cases in point : for example, the group Terebratula, as it was generally understood about fifteen years ago. At that time, he was con-

sidered a bold innovator who had the temerity to separate the infra-foraminated from the apically-foraminated species, and to rank the former as a genus, now called *Rhynchonella*. But in what light are they now considered? The genus is regarded not only as the type of a family, but even as the representative of an order (*Helictobrachia*), totally distinct from the one (*Ancylobrachia*) embracing the apically-foraminated species or ordinary *Terebratulidæ*.

Leaving the present discussion, I may now state that I purpose in this paper adhering to the view adopted in my "Monograph of the Permian Fossils of England," which regards the *Palliobranchs* with recurved or subgyrated labial appendages as ordinarily distinct from those, in which these structures are spirally folded,* and as comprising a number of families. In the work referred to I separated the species containing a long loop from those having a short one under the name of *Waldheimia*; but I did not, when doing so, sufficiently estimate other differences which exist between them. For some time past, however, the conviction has gradually forced itself on me, that these differences are of sufficient importance to warrant a wider separation than a mere generic one; and, in accordance with this view, I now propose to arrange all the *Ancylobrachs* with a long loop, and some, which resemble them in other particulars, under a new family, which may be termed *Waldheimidæ*. By adopting this plan, not only do we properly estimate certain structural characters which distinguish the species of the proposed family from the short-looped *Ancylobrachs* or *Terebratulidæ*, but a practical answer is given to the first question alluded to in the beginning.

Many *Palliobranchs* possess, besides their brachial supports, two or more plates attached to the hinge in one or both valves. In several species the plates are separate, and stand more or less perpendicularly; but in others they are united by one of their edges, forming the various shaped processes seen in *Pentamerus*, *Camaraphoria*, *Merista*, *Leptagonia*, and other genera, as described by myself in 1846† and 1850.‡ These plates and processes I have always considered to be muscular

* Gray, the founder of this view, has designated these two orders respectively "*Ancylobrachia*" and "*Helictobrachia*."

† *Vide* "Remarks on certain Genera belonging to the class *Palliobranchiata*."

‡ *Vide* "Monograph of the Permian Fossils of England."

supports;* and, that their form and arrangement, in different families, constituted generic diagnoses, as is the case with the teeth in Lamellibranchs. I have therefore been led to institute two of the following genera on the peculiarities of their muscular fulcra:—

Family.—TEREBRATULIDÆ.

Diagnosis.—Small valve, generally furnished with a short, slightly recurved or anneliform loop, having its crura attached, one to each of the dental protuberances, and supporting the origin or basal portion of the labial appendages.

This family includes Terebratula, Terebratulina, and some other genera, one of which I consider is the genus next to be described. All of them appear to be entirely devoid of the muscle-bearing shelly plates common in the next family, and others (Rhynchonellidæ, &c.) belonging to the Helictobrachiata order. The want of these shelly plates constitutes a negative character of much importance in the present family.

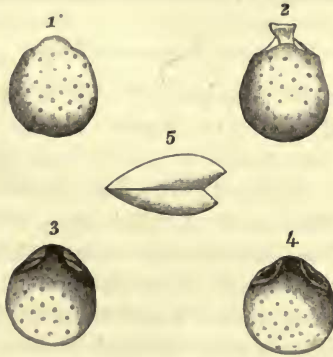
Genus.—GWYNIA (*King*).

Diagnosis.—Smooth, subequivalved, sub-auriculated and longitudinally oval: valves thin, with both umbones prominent: foramen emarginated by the deltidial fissure: teeth strong, lamelliform, rather apart, and situated on the sub-auricles: cardinal muscular fulcrum excavated in the substance of the large plate: labial appendages free, except at their origin, where they are directly attached to the surface of the shell: perforations in the shell tissue rather large and wide apart.

Type species.—*Terebratula capsula* (*Jeffreys*).—The present genus is founded on a very minute shell, first discovered by Mr. J. Gwyn Jeffreys (to whom I have, with much pleasure, dedicated it) at Etretat, on the coast of Normandy, and since determined by him as occurring in Belfast Lough, where it has been taken by Messrs. Hyndman and Norman. Mr. Jeffreys, in his account of the species (*vide* "Annals of Natural History," January, 1859), remarks:—"This shell being equi-valve, or nearly so, it may be a question whether it ought not to be

* The "pedicle muscles" generally. But the "valvular muscles" also, in Camarophoria, appear to have been supported by the spatula-shaped process of this genus; and a like office has apparently been subserved by the two long vertical plates in the small valve of Pentamerus.

placed in a new sub-genus of *Terebratula*." On reading this remark, I wrote to Mr. Jeffreys, who, in return, kindly forwarded to me all his specimens, so that I might be enabled to form some opinion on the question he had raised. The principal generic character of *Gwynia* is in the labial appendages being attached directly to the shell (first observed by Mr. Jeffreys), and not to a loop, as in other genera of the same family. The prominency of the umbone of the small or receiving valve, the form, position, and (considering the size of the species) unusual development of its teeth, also the large size of the perforations of its shell tissue, form other good distinguishing characters. In being sub-auriculated it resembles *Terebratulina*. The absence of a loop seems to oppose the genus being placed in the family *Terebratulidæ*; but I prefer retaining it thus, until other differences are made out: possibly when the animal is known, more satisfactory data on this point may be discovered.



Gwynia capsula.

- 1, outer surface of the large valve.
- 2, outer surface of the small valve. The projecting portion is the pedicle.
- 3, inside of large valve, showing teeth and deltidial fissure.
- 4, inside of small valve, showing dental sockets.
- 5, longitudinal section of both valves, in the closed state.

Family.—WALDHEIMIDÆ (*King*).

Diagnosis.—Receiving valve generally furnished with a long, deeply recurved loop, having its crura attached, one to each of the dental protuberances, and occasionally, its anterior portion united to the centre of the valve by one or two connecting processes: loop supporting the labial appendages throughout their entire extent. Pedicle muscles often

supported by plates attached to the dental protuberances, from which they pass perpendicularly or obliquely: in the latter case they become confluent, forming a sternum-like process, which is generally supported by a perpendicular plate passing considerably forward along the medio-longitudinal line of the valve.

I include in this family the genera *Waldheimia* (the type), *Terebratella*, *Kingena*, *Ismenia*, *Meganteris*, and some others, to which may be added the new genera next to be described. Comparing the animal of *Terebratulina caput-serpentis* with that of *Waldheimia Australis*, it is difficult to conceive that there are not differences manifested, especially in their respective labial appendages, of more than generic value: further, the presence of pedicle muscle plates in the latter, and their absence in the former, are also strongly in favour of this view. The confluent muscular fulcral plates, in the small valve of most genera, have much resemblance to a bird's sternum, viewed on its inner surface.

GENUS.—*DIELASMA* (*King*).

Diagnosis.—Smooth, longitudinally oval, inequivalve, the foraminated or condyle valve being the largest: foramen complete: umbonal cavity of the large valve furnished with muscular fulcral plates passing perpendicularly from the dental protuberances to the surface of the valve: umbonal cavity of the small valve furnished with muscular fulcral plates, oblique, confluent, and forming a sternum-like process, supported by a medio-longitudinal plate. Loop in type species short, slightly recurved, and extending to about a third of the length of the valve: perforations in the shell tissue small and approximate.

Type species.—*Terebratulites elongatus* (*Schlotheim*).—I have long considered that the above species, which is one of the fossils characteristic of the Permian system, ought to be separated from *Terebratula*, the genus in which it is usually placed. In my "Monograph" I made use of Professor Phillips's name "Epithyrus" for it; but this has been objected to, with some reason, by several parties. On similar grounds, I object to the name *Semiluna*, which has been proposed for the group by Professor M'Coy, considering that it was originally applied to species which there is little doubt belong to the genus *Rhynchonella*. I was therefore induced to apply to the above species the generic name "*Dielasma*" in my "Historical Account of the Invertebrata belonging to the Permian Rocks of the North of England," lately published.

Notwithstanding the small size of the loop in the present genus, as compared with that characteristic of its congeners, I think the presence of highly developed muscular fuleral plates warrants its removal, not only from other short-looped groups generically, but its being considered a member of a distinct family. No known genus of Terebratulidæ, as restricted in the present paper, possesses any plates of the kind: these structures are only to be seen coexisting with the long-loop in genera belonging to the family Waldheimidæ. The short-loop in *Dielasma* may therefore be considered as an exceptional character; but there is no ground for considering it as exceptional in anything else but in length, inasmuch as it must be admitted that a short-loop may support labial appendages throughout their entire extent as well as a long one.

Dielasma is a protozoic form, occurring in Permian and Carboniferous rocks. It appears to have lived also at a later period, as *Terebratula ovoidea* (Sow.) seems to be a Liassic representative of the genus. It is a remarkable fact, that we are not yet acquainted with any other Ancylobrachiata Palliobranch of the primary periods, except such as belong to Waldheimidæ, or are related to this family; for example, *Meganteris* and *Stringocephalus*.

Genus.—*MACANDREVIA* (*King*).

Diagnosis.—Smooth, longitudinally oval, inequivalve, the condyle valve being the largest: foramen emarginated by the deltidial fissure: umbonal cavity of large valve furnished with two muscular fuleral plates passing somewhat perpendicularly from the dental protuberances to the surface of the valve: umbonal cavity of opposite valve also furnished with similarly directed plates: cardinal muscular fulcrum excavated in the substance of the hinge. Loop long, strongly recurved, and extending in front of the centre of the valve. Perforations in shell tissue distinct, and separated by interspaces equal in size to themselves.

Type species.—*Terebratula cranium*.—Of late the shell which serves as the type of the present genus, named in compliment to Mr. M'Andrew, has been considered a *Waldheimia*, on account of its loop resembling the type species of the genus just named; but some other characters, apparently overlooked, necessitate, in my opinion, its removal. In none of the figures published of *Macandrevia cranium* are the muscular fuleral plates correctly represented: indeed, the fulcra of the large valve appear to have been overlooked: those in the opposite valve are

represented as confluent, and resembling the sternum-like muscular fulcrum in *Waldheimia Australis*; but the contrary prevails, as they are completely disunited. Further, there is no medio-longitudinal plate, as in the last species. The excavated cardinal muscular fulcrum also distinguishes it from the genus in which it has hitherto been placed. The muscular plates of the large valve call to mind the corresponding plates in *Dielasma*. In these particular structures *Macandrevia* differs from all known existing Ancylobrachs: they are only to be found in the living Helictobrachs—*Rhynchonella psittacea*, and *R. nigricans*; while those belonging to the small valve are altogether different from their counterparts in other Palliobrachs, except certain forms which lived during the protozoic periods.

PROFESSOR J. REAY GREENE read a paper—

ON THE REMARKABLE SHELL-BED OF BEAUFORT, QUEBEC.

BY JOHN GRAINGER, A. M.

As this deposit has been minutely described by Sir Charles Lyell in his "Travels in North America," I shall confine myself to a few remarks of an expletive character on the various notices which have appeared, suggested by a small mass of the characteristic shells which I obtained when at Quebec last year. It cannot be thought that the deposit is otherwise than remarkable, when it is considered, that for twelve feet in thickness, it consists almost entirely of a species of *Saxicava*. Sir Charles Lyell considered it the species *rugosa*, but it appears very distinctly to possess the peculiarities of *arctica*, as distinguished in Messrs. Forbes and Hanley's *Mollusca*. The portion of the deposit which I possess happens to have been broken out in the shape of a rough three-sided prism, about six inches in length, and two inches and a half in breadth, and is composed almost entirely of the agglutinated *Saxicava*, with a hard mixture of siliceous grains and pebbles. In the sides of this figure there can be distinguished about one hundred valves lying in all directions, "end uppermost" included; they are bleached and brittle, but appear to possess a portion of their animal gluten. Very few of them have both valves united. Sir Charles Lyell must have met with them in a different condition, when he observes that their valves were mostly united. They generally exceed an inch in length, which is rarely the case in British examples. One of them is bored to the width of one-eighth of an inch.